

**OUTLINE – 2015 FCMP  
232 MONROE STREET  
SALINE, MICHIGAN**

September 18, 2015

## **1 INTRODUCTION**

### **1.1 SITE DESCRIPTION**

- Location
- History
- Physical Info (topography, hydrology, Saline River, etc.)
- Terrestrial Ecological Evaluation

### **1.2 BACKGROUND OF CORRECTIVE MEASURE PROPOSAL SUBMITTALS**

- The following prior corrective measures proposal documents were prepared and submitted to USEPA on behalf of JCI:
  - Interim June 15, 2004 Corrective Measures Proposal (CMP) submitted by ENTACT with USEPA comments received on November 22, 2004.
  - May 12, 2006 Final CMP submitted by ENTACT with USEPA comments received on March 15, 2007.
  - July 16, 2007 Corrective Measures Proposal Addendum (CMPA) submitted by GZA with USEPA comments received on October 24, 2007.
  - November 28, 2007 Interim Action Proposal submitted by GZA, implemented and then documented in its December 12, 2008, Interim Action Report to the USEPA.
  - March 6, 2009 Revised CMPA submitted by GZA with USEPA comments received on July 13, 2009.
  - March 6, 2009 Revised CMPA submitted by GZA with USEPA comments received on July 13, 2009.
  - May 4, 2011 Revised Amendment to March 2009 Revised Corrective Measures Proposal Addendum

### **1.3 SITE INVESTIGATION COMPLETENESS DETERMINATION**

- June 23, 2010 - USEPA provided a Completion of AOC Activities - Progress Update letter stating that, "USEPA's review found the additional site characterization data to be sufficient to proceed with the preparation of an amended March 6, 2009 CMPA (i.e., the Final CMPA)."

## **2 SUMMARY OF PREVIOUS REMEDIATION ACTIVITIES**

### **2.1 Historical**

### **2.2 2014 - Fencing**

### **2.3 2015 – Removal of concrete and facility debris**

- Removal of subsurface foundations and structures
- Recycling of materials
- Off-site disposal of materials
- Off-site arsenic
- Well vault

### 3 REMEDIAL OBJECTIVES AND CLEANUP STANDARDS

Johnson Controls, Inc. is now the owner of the property. Residential re-use of the property is no longer planned.

The Remedial Objective for the site is closure under MDEQ's Part 201 of PA 451 non-residential exposure scenario. Cleanup standards for the site are Michigan's non-residential cleanup criteria (presented in Appendix \_\_\_).

#### 3.1 MITIGATION OF RISK

- Institutional Controls: Institutional controls consist of deed restrictions, local ordinances, and/or zoning that would limit the future use of the property such that the exposure pathways do not change.
- Planned institutional controls will consist of deed restrictions for the following:
  - Residential use of the property;
  - Consumption of water from the site's shallow aquifer;
  - Excavation at the property with a Health and Safety Plan for worker protection; and
  - Others?

#### 3.2 SOIL

- Non-residential cleanup criteria will be used.
- Exposure point concentrations (e.g., a 95% UCL) may be used for some criteria comparisons.
- Depth of result, or other discussion of mitigating factors

#### 3.3 SEDIMENT

- Mean PEC Quotients utilizing the Consensus Based Sediment Quality Guidelines will be used.

#### 3.4 GROUNDWATER

- Deed restriction will be used.

#### 3.5 GROUNDWATER-SURFACE WATER INTERFACE CRITERIA

- GSI mixing zone will be used.
  - On December 23, 2009, MDEQ provided USEPA its response to the October 19, 2009, mixing zone request, as included in Appendix \_\_\_. Mixing zone GSICs were provided for:
    - Copper (140 micrograms per liter [ $\mu\text{g}/\text{l}$ ])
    - Cyanide (44  $\mu\text{g}/\text{l}$ )
    - Nickel (3,100  $\mu\text{g}/\text{l}$ )
    - Selenium (120  $\mu\text{g}/\text{l}$ )
    - Zinc (1,500  $\mu\text{g}/\text{l}$ ).
  - Mercury: Based on MDEQ Policy and procedure Number 09-014 June 20, 2012 (Evaluating Mercury in Groundwater Plumes Relative to the Groundwater/Surface Water Interface (GSI)), values of mercury below the quantification level of 200 ng/L (0.2  $\mu\text{g}/\text{L}$ ) are considered a De Minimis condition pursuant to Section 20120e of Part 201 and activity beyond evaluations will not be required.
    - All Mercury detections are below De Minimis conditions so no Mixing Zone is required for Mercury at the site.



### 3.6 ARSENIC BACKGROUND LEVELS

- May 24, 2010 - Arsenic concentrations for clay and sand, based on the mean plus three standard deviations, are 10,300 and 7,000 µg/kg, respectively. The calculations of background arsenic concentrations were approved by MDEQ.
- No longer necessary because non-residential criteria (37,000 for direct contact) is greater than background.

## 4 HISTORICAL SOIL AND GROUNDWATER SAMPLING AND EVALUATION OF RESULTS

### 4.1 SOIL SAMPLING

#### 4.1.1 Sampling

- March 2010 - At request of USEPA, 17 additional soil borings were drilled in areas of the Site with no prior borings and primarily within the footprint of the building.
  - Minimum of two soil sample intervals from each boring.
  - The first sample from each boring consisted of the near-surface 0- to 2-foot interval
  - MI 10 metals, nickel, cyanide and PCBs.
  - Deeper soil interval was selected based on visual, olfactory and field-screen indications of impact
  - MI 10 metals, nickel, cyanide and PCBs. (If field-screening or staining in a particular sample indicated the presence of VOCs or oil, the sample was submitted for VOCs and PAHs.)
  - In addition to the analyses listed above, hexavalent chromium (Cr+6) analyses were performed in accordance with USEPA Method 7196A on the six soil samples with the highest total chromium concentrations and in excess of statewide background concentrations.

#### 4.1.2 Evaluation

- Elimination of those data points that were previously remediated
- Exceedances of Non-residential cleanup criteria:
  - VOCs - Csat value was exceeded for 1,2-dichlorobenzene at one point, 08GP24 (at a depth of 7')
    - See section 5.1
  - PCBs - Exceed direct contact at two points TP-3 (at depth of 6') TP-4 (at depth of 7')
    - Exceeds depth of surface soil
  - Metals - Exceed direct contact criteria for Arsenic at two points 03SB-09-08 (at depth of 7-8') Arsenic and Area 2SW-4 (at depth of 2')
    - Exceeds depth of surface soil.

### 4.2 SALINE RIVER SEDIMENT SAMPLING

#### 4.2.1 Sampling

- Analysis of PCBs and PAHs.
- May 7 through 9, 2010 - GZA collected a total of 21 sediment samples from 17 individual sampling stations along the north and south banks of the Saline River.
- December 15, 2010 - GZA collected an additional 10 sediment samples from sampling stations requested by the USEPA along the north and south banks of the Saline River

#### 4.2.2 Evaluation

- Performed Mean PEC Quotients utilizing the Consensus Based Sediment Quality Guidelines.
- PEC Quotients above 0.5 are recommended for voluntary removal.

### 4.3 GROUNDWATER SAMPLING

#### 4.3.1 Sampling

- A semi-annual groundwater sampling round was performed during the period of March 11 through 13, 2010. Groundwater samples were collected from each of the groundwater monitoring wells in the monitoring well network at the Site.

#### 4.3.2 Evaluation

- All Mercury detections are below De Minimis conditions so no Mixing Zone is required for Mercury at the site.
- No GSI exceedances for metals based on Mixing zone GSICs
- Groundwater exceeds GSI Value for vinyl chloride and PCB, although in the mixing zone determination from the MDEQ in an interoffice communication dated November 19, 2009, it was indicated that "vinyl chloride, lead and silver venting to the Saline River do not have the reasonable potential to cause exceedances of water quality standards. We (MDEQ) have no recommendation for these parameters at this time."
- Historical exceedances of Drinking water criteria will be addressed with a deed restriction.

### 4.4 SUPPLEMENTAL SAMPLING RESULTS

- Review of concrete sampling – Removed and disposed appropriately off-site

## 5 MODIFIED CORRECTIVE MEASURES RECOMMENDATION

### 5.1 RECOMMENDED REMEDIAL ACTION AREAS

- Soil
  - When evaluated based on non-residential criteria, no remediation is required.
  - Institutional controls as discussed in 3.1, 5.5.
  - Voluntary in-situ treatment of VOCs from section 4.1.2.
  - Voluntary removal of Arsenic on other side of fence
- Sediment
  - Voluntary removal of PCB/PAH impacted sediments under bridge that exceed Mean PEC Quotients.

### 5.2 GROUNDWATER REMEDIATION

- No GSI exceedances, no remediation is required.
- Institutional controls for drinking water protection as discussed in 3.1, 5.5.
- Monitoring as discussed in 5.6.

### 5.3 POST-CORRECTIVE ACTION HUMAN HEALTH

- Based on non-residential usage, soil falls under Part 201 criteria, and no further health evaluation necessary.
- To prevent potential for subsurface direct contact with Groundwater and Soil, Issue a Deed Restriction to protect future worker and or land owners of the risk, and ensure Zoning is maintained as non-residential as discussed in 3.1, 5.5

#### 5.4 ASSESSMENT OF VAPOR INTRUSION

- As requested by the USEPA in January 31, 2011 comment letter, the potential for vapor intrusion (VI) risk to an off-Site residence and unknown future developments from VOCs was conducted as part of the corrective measures.
- Need to locate results.

#### 5.5 PROPOSED INSTITUTIONAL CONTROLS

- Planned institutional controls will consist of deed restrictions for the following:
  - Residential use of the property;
  - Consumption of water from the site's shallow aquifer;
  - Excavation at the property with a Health and Safety Plan for worker protection; and
  - Others?

#### 5.6 GROUNDWATER MONITORING

- 1<sup>st</sup> year - Sample Quarterly
- 2<sup>nd</sup> & 3<sup>rd</sup> year – Sample Annually
- Then, no further monitoring
- MW-1, MW-2, MW-5, MW-6, MW-14, MW-16, MW-17, MW-18, MW-19 and MW-23

#### 5.7 CONTINGENCY PLAN RELATED TO FUTURE GSI EXCEEDANCES

- In the event a GSI exceedance other than mercury is detected in the post-remediation groundwater monitoring round, a follow-up sampling round will be performed within one month of detection of the GSI exceedance.
- If the follow-up sampling round confirms the GSI exceedance the monitoring plan or mixing zone determinations may be re-evaluated.

#### 5.8 ESTIMATED IMPLEMENTATION COSTS

- TBD

#### 5.9 IMPLEMENTATION SCHEDULE

- 2015 – Begin GW monitoring
- 2016 – Sediment Removal, Voluntary VOC area, Well Vault, Continued GW Monitoring
- 2017 – Continued GW Monitoring